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# FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEY and WATER SUPPLY FORECASTS for ARIZONA

UNITED STATES DEPARTMENT of AGRICULTURE SOIL CONSERVATION SERVICE

Data included in this report were obtained by the agency named above in cooperation with the Federal, State and private organizations listed on the last page of this report.

FEB. 1, 1958

#### UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

TO RECIPIENTS OF COOPERATIVE SNOW SURVEY AND WATER SUPPLY FORECAST REPORTS:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Fortunately, most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from fore-knowledge of the runoff.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, about 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1300 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

By relating snow survey measurements taken over a period of years to spring-summer runoff during the same period, relationships have been developed which make it possible to forecast seasonal runoff several months in advance of occurrence. In order to make a forecast, once a forecast relationship has been developed, the maximum snow water content at previously selected key snow courses is usually entered in the forecast relationship. More accurate forecasts are often obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast relationships.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions.

#### PUBLISHED BY SOIL CONSERVATION SERVICE

| REPORTS                  | ISSUED                              | COOPERATING WITH                                   | LOCATION                         |
|--------------------------|-------------------------------------|--|----------------------------------|
| RIVER BASINS             |                                     |  |                                  |
| Colorado, Rio Grande     | MONTHLY (FEBMAY)                    | Colo, Exp. Station                                 | FT. Collins, Colo.               |
| COLUMBIA Includes Alaska | MONTHLY (JAN MAY)                   | )  | BOISE, IDAHO                     |
| UPPER MISSOURI           | MONTHLY (FEB MAY)                   | Mont.Agr.Exp.Station                               | BOZEMAN, MONTANA                 |
| WEST-WIOE                | Semi-Annually<br>(Oct. 1 and Apr.1) | COOPERATORS  | PORTLANO, OREGON                 |
| STATES                   |                                     |  |                                  |
| ARIZONA                  |                                     | SALT R. VALLEY WATER                               | PHOENIX. ARIZONA                 |
| NE VADA                  | MONTHLY (FEB APR                    | .)NEVAOA STATE ENGINEER                            | RENO. NEVAOA                     |
| ORE GON                  | MONTHLY (JANMAY                     | )ORE.AGR.EXP.STATION                               | PORTLANO. OREGON                 |
| UTAH                     | Monthly (JanMay                     | )UTAH STATE ENGINEER )UTAH AGR.EXP.STATION         | SALT LAKE CITY, UTAH             |
| WashingTon               | Monthly (FEBMay                     | WASH. STATE DEPT. OF )CONSERVATION AND DEVELOPMENT | Spokane. Washington              |
| WYOMING                  | Mon THLY (FE 8 Jun                  | e) Wyoming State Engineer                          | CASPER, WYOMING                  |
| Copies of the            | various reports may                 | Soil Conservation                                  | ly Forecasting Section n Service |

#### PUBLISHED BY OTHER AGENCIES

209 S.W. 5th Avenue, Portland 4, Oregon

| OTHER SNOW SURVEY REPORTS  BRITISH COLUMBIAMONTHLY | (FEBJUNE),        | WATER RIGHTS BR., DEPT. OF LANOS<br>PARLIAMENT BLDGS. VICTORIA, B.C. |
|--|-------------------|--|
| CALIFORNIAMonthly                                  | (FEBMAY) GALIFORN | A DEPARTMENT OF WATER RESOURCES.                                     |

for

#### ARIZONA

(Salt, Verde, Gila and part of Lower Colorado River Basin)

Issued

February 5, 1958

Report Prepared

by

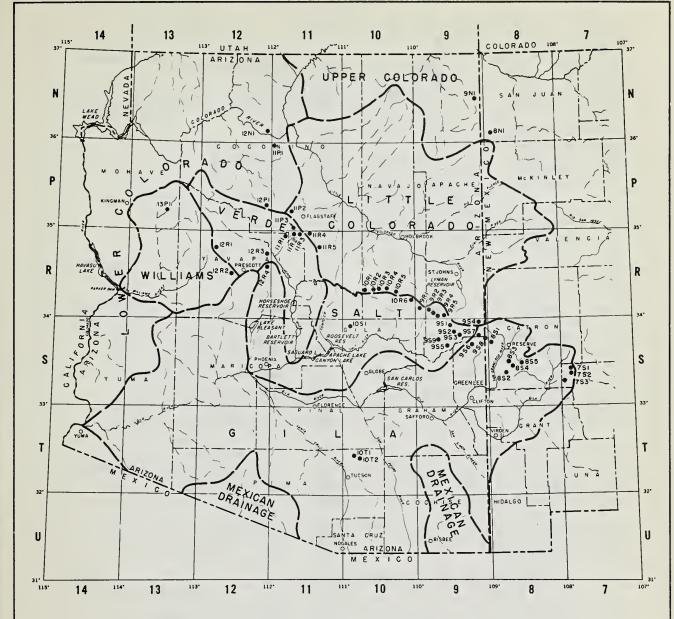
George Watt, Snow Survey Supervisor Soil Conservation Service 807 West Washington Phoenix, Arizona

Issued by

Robert V. Boyle State Conservationist

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# LEGEND DRAINAGE BASIN BOUNDARY 13U2 SNOW COURSE

# ARIZONA COOPERATIVE SNOW SURVEYS

SNOW COURSES AND DRAINAGE BASINS
JANUARY 1956



#### INDEX TO SNOW COURSES

| NUMBER            | * NAME              | SEC    | TWP      | RGE** EI                 | EVATION | RIVER BASIN                 |              |
|-------------------|---------------------|--------|----------|--------------------------|---------|-----------------------------|--------------|
| 11-P-3            | Antelope Park       | 29     | 19N      | 8E                       | 7300    | Verde #                     | Discontinued |
| 9-S-1             | Baldy (p)           | 28     | 7N       | 27 <b>E</b>              | 9000    | Salt-Little Colorado        | Discontinued |
|                   |                     |        |          |                          |         |                             |              |
| 10 <b>-</b> T -1  | Bear Wallow         | 6      | 12S      | 16E                      | 8100    | Gila                        |              |
| 9-S-6             | Beaver Head         | 13     | 4N       | 30E                      | 8000    | Salt-Frisco                 |              |
| 9-S -3            | Big Lake Knoll      | 2      | 5N       | 28E                      | 8800    | Salt-Frisco-Little Colorado | Discontinued |
| 7-S -3            | Black Canyon        | 8      | 135      | 11W***                   | 6790    | Gila                        |              |
| 12-N-1            | Bright Angel        | 34     | 33N      | 3E                       | 8400    | Lower Colorado              |              |
| 12-R -1           | Camp Wood           | 3      | 16N      | 6W                       | 5700    | Williams-Verde              |              |
| 10-R -3           | Canyon Creek (s)    | 18     | 11N      | 15 <b>E</b>              | 7500    | Salt                        |              |
| 11-R -2           | Casner Park (s)     | 19     | 18N      | 8E                       | 6950    | Verde                       |              |
| 12-P -1           | Chalender (s)       | 27     | 22N      | 3 <b>E</b>               | 7100    | Verde                       |              |
| 8-S-3             | Corner Mountain     | 7      | 10S      | 17W***                   | 8850    | Gila-Frisco                 |              |
| 9-5-9             | Corn Creek (p) Lat  | .33°45 | 'N. Long | . 109 <sup>0</sup> 45'W. | § 7730  | Salt                        |              |
| 9 <b>-</b> S -7   | Coronado Trail      | 26     | 5N       | 30E                      | 8000    | Salt-Frisco                 |              |
| 10-R -2           | Elk                 | 31     | 11N      | 14E                      | 7600    | Salt-Little Colorado        | Discontinued |
| 10-R-6            | Forest Dale (s)     | 2      | 9N       | 21E                      | 6000    | Salt-Little Colorado        | Discontinued |
|                   | Torest Date (s)     |        | 714      | 216                      | 0000    |                             |              |
| 11-P-2            | Fort Valley         | 22     | 22N      | 6E                       | 7350    | Verde #                     |              |
| 9-R -5            | Ft. Apache          | 18     | 7N       | 27E                      | 9160    | Salt-Little Colorado        |              |
| 8-5-1             | Frisco Divide       | 31     | 65       | 20W***                   | 8000    | Frisco-Gila                 |              |
| 12-R-4            | Gaddes Canyon       | 11     | 15N      | 2E                       | 7600    | Verde #                     |              |
| 10-R-5            | Gentry              | 36     | 11N      | 15E                      | 7600    | Salt-Little Colorado        |              |
|                   | ·                   |        |          |                          |         |                             |              |
| 11-P-1            | Grand Canyon        | 21     | 30N      | 4E                       | 7500    | Lower Colorado              |              |
| 11-R -5           | Happy Jack          | 30     | 17N      | 9E                       | 7630    | Verde                       |              |
| 10-R -4           | Heber (p)           | 28     | 11N      | 1 <i>5</i> E             | 7600    | Salt-Little Colorado        |              |
| 7-S -2            | Inman               | 6      | 115      | 10W***                   | 7800    | Gila                        |              |
| 12-R -2           | Iron Springs        | 22     | 14N      | 3W                       | 6200    | Williams-Verde              |              |
| 9-S-2             | Maverick Fork (s)(p | ) 13   | 6N       | 27E                      | 9050    | Salt-Little Colorado        |              |
| 9-R -4            | McKay Peak          | 13     | 7N       | 24E                      | 8250    | Salt                        | Not read     |
| 9-R -2            | McNary (s)          | 14     | 8.N      | 23E                      | 7200    | Salt-Little Colorado        |              |
| 9-R -1            | Milk Ranch          | 28     | NS       | 23E                      | 7000    | Salt                        |              |
| 12-R -3           | Mingus Mountain     | 3      | 15N      | 2E                       | 7100    | Verde #                     |              |
| 9 ( )             | Manallan            | 2      | 115      | 1.0\4/***                | 7000    | Estara Cilla                |              |
| 8-S-2             | Mogollon            | 2      | 115      | 19W***                   | 7000    | Frisco-Gila                 |              |
| 11-R-4            | Mormon Lake         | 13     | 18N      | 8E                       | 7350    | Verde #                     |              |
| 11-R-3            | Mormon Mountain(s)  |        | 18N      | 3E                       | 7500    | Verde                       |              |
| 11-R-1            | Munds Park (s)      | 7      | 18N      | 7E                       | 6500    | Verde                       |              |
| 8 <b>-</b> S-4    | N-Bar Lake          | 16     | 105      | 17W***                   | 8600    | Gila                        |              |
| 8-S <b>-</b> 5    | Negrito             | 6      | 105      | 16W***                   | 8200    | Gila                        |              |
| 9-S -4            | Nutrioso            | 23     | 6N       | 30E                      | 8500    | Salt-Frisco-Little Colorado |              |
| 9-S -5            | Pacheta §           |        |          | verick, Ariz             | . 7800  | Salt                        |              |
| 9-N-1             | Roof Butte          | 15     | 8N       | 6W****                   | 8500    | Little Colorado             | Not read     |
| 10 <b>-</b> T -2  | Rose Canyon         | 15     | 125      | 16E                      | 7300    | Gila                        |              |
| 9 <b>-</b> S -8   | State Line          | 6      | 65       | 21W***                   | 8000    | Gila-Frisco                 |              |
| 7-S -1            | Taylor Creek        | 20     | 105      | 10W***                   | 7850    | Gila                        |              |
| 9-R -3            | Trout Creek         | 5      | 7N       | 24E                      | 5400    | Salt                        | Not read     |
| 8-N-1             | Warhington Pass Lat |        |          |                          |         | Little Colorado             | Not read     |
| 13-P -1           | Willow Ranch        | 16     | 21 N     | 11W                      | 5000    | Williams                    | 1401 1600    |
| 13-1 -1           | 1-DIOM ZGBCB        | 10     | 2114     | 1 1 44                   | 5000    | YV I I I QTTIS              |              |
| 10-R -1           | Woods Canyon        | 15     | 11N      | 13E                      | 7640    | Salt-Little Colorado        | Discontinued |
| 10 <b>-</b> S - 1 | Workman Creek       | 33     | 6N       | 14E                      | 6900    | Salt                        |              |
|                   | -                   |        |          |                          |         |                             |              |

<sup>\*</sup> Number indicates location of course within coordinate rectangle, thus 9-N 1 is Course \*1 in coordinate rectangle 9-N.

<sup>\*\*</sup> All in Gila and Salt River Base and Meridian except where otherwise indicated.

<sup>\*\*\*</sup> New Mexico Principal Meridian.

<sup>\*\*</sup> Navajo Base.

6 On adjacent drainage.

<sup>(</sup>s) Soil Moisture Station installed an or in vicinity of course.

<sup>§</sup> Unsurveyed.

<sup>(</sup>p) Storage gage installed on or in vicinity of course

#### ARIZONA WATER SUPPLY OUTLOOK

#### February 1, 1958

- SNOW COVER: The snow cover in Arizona is the lowest that has been recorded on this date in the twenty years of record. Snow was measured only in the White Mountains above 9,000 feet, at Grand Canyon and at the head of the San Francisco and Gila Rivers near the state line. The deepest snow was found in the White Mountains, where 15 inches of snow containing 3.5 inches of water were measured. Snow along the Mogollon Rim existed only in patches in the shady areas and north slopes.
- SOIL MOISTURE: Soil moisture stations show moisture withdrawals in the first and second feet and will need probably an average of 2 inches of water to bring the moisture back to field capacity. In the forest area the early fall precipitation wetted the measured four-foot soil profile in all but the drier stations.
- RESERVOIRED WATER: The early fall precipitation contributed to the reservoired water which improved it over last year at this time. The total storage of eight major reservoirs in Arizona, excluding those on the Colorado River, is 110 per cent of last year but only 52 per cent of average and 14 per cent of capacity.
- STREAM FLOW: The stream flow for the January through May period is predicted to be only 24 per cent of average for the Salt and Verde River systems and 30 per cent for the Upper Gila River, if normal precipitation occurs during the remaining months. This is only 30 per cent of last year's flow for the same period on the Salt and Verde Rivers and about 100 per cent of that on the Gila River.



### STREAM FLOW FORECASTS - FEBRUARY 1, 1958

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts.

| DACIN CODEAN AND CHARTON                 | SEASONAL STREAM FLOW IN THOUSANDS OF ACRE FEET FORECAST FERIOD JANUARY - MAY, INCLUSIVE |         |              |           |         |                 |  |  |
|--|---|---------|--------------|-----------|---------|-----------------|--|--|
| BASIN, STREAM AND STATION                |   |         | Mea          | sured Rur | 1938-52 |                 |  |  |
|  | 1958  | Average | 1957         | 1956      | 1955    | Average         |  |  |
| Salt River at Intake                     | 95.0  | 511     | 213.7        | 141.1     | 56.6    | 392.4           |  |  |
| Tonto River above Roosevelt              | 10.0  | 18      | 96.3         | 10.6      | 4.9     | 56.2 <u>1</u> / |  |  |
| Verde River above Horseshoe              | 65.0  | 25      | 267.9        | 60.4      | 73.8    | 257.0           |  |  |
| Gila River at Virden                     | 25.0  | 32      | 22.5         | 14.8      | 15.4    | 77.6            |  |  |
| Frisco River at Clifton                  | 19.0  | 27      | 20.9         | 13.1      | 12.1    | 70.4            |  |  |
| Little Colorado River above Lyman Dam 2/ | 1.5   | 15      | ting time ma | 3.1       | 0.8     | 9.8.1/          |  |  |

<sup>1/</sup> Average is for less than 15 years of record in the 1938-52 period.

<sup>2/</sup> Forecast period for Little Colorado River above Lyman Dam is for January-June inclusive.

## STATUS OF ARIZONA RESERVOIR STORAGE - FEBRUARY 1, 1958

|                           |               |                                | USABL       | E STORAGE - | 1000 ACRE | FEET                          |
|---------------------------|---------------|--------------------------------|-------------|-------------|-----------|-------------------------------|
| BASIN<br>and/or<br>STREAM | RESERVOIR     | USABLE<br>CAPACITY<br>1000s AF | 1958        | 1957        | 1956      | 15-Year<br>Average<br>1938-52 |
|                           |               | <u>G</u>                       | ILA DRAINA  | Œ           |           | ,                             |
| Agua F <b>ri</b> a        | Lake Pleasant | 163.8                          | 7.6         | 20.1        | 27.8      | 21.1                          |
| Gila                      | San Carlos    | 1,205.0                        | 56.3        | 7.8         | 75.0      | 167.1                         |
| Verde                     | Bartlett      | 180.0                          | 106.3       | 77.2        | 75.7      | 48.7                          |
| Verde                     | Horseshoe     | 143.0                          | 1.8         | 23.3        | 2.5       | 15.5                          |
| Salt                      | Roosevelt     | 1,381.6                        | 1:1:1:1     | 123.5       | 216.0     | 422.4                         |
| Salt                      | Apache        | 245.1                          | 207.0       | 80.9        | 243.3     | 179.5                         |
| Salt                      | Canyon        | 57.8                           | 54.4        | 54•7        | 53.6      | 29.3                          |
| Salt                      | Saguaro       | 69.8                           | 56.0        | 47.9        | 66.8      | 19.2                          |
|                           |               | LOWER                          | COLORADO DE | RAINAGE     |           |                               |
| Colorado                  | Lake Havasu   | 688.0                          | 565.9       | 608.6       | 611.0     | 554.6                         |
| Colorado                  | Lake Mohave   | 1,810.0                        | 1,541.8     | 1,671.0     | 1,656.0   | 1,045.2                       |
| Colorado                  | Lake Mead     | 27,207.0                       | 20,013.0    | 11,765.0    | 11,219.0  | 19,438.0                      |
| Little<br>Colorado        | Lyman         | 30.6                           | 1.9         | 0.0         | 8.0       | 7.9 <sup>1</sup> /            |
| Little<br>Colorado        | Show Low Lake | 5.1                            | 0.1         | 0.1         | 0.1       | Auro Gass, SAHS               |

<sup>1/</sup> Average is for less than 15 years of record in the 1938-52 period.

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## SUPMARY OF FEBRUARY 1, 1958 ARIZONA SNOW SURVEYS AND COMPARISON OF DATA WITH THAT OF PREVIOUS YEARS BY WATERSHED

|                          | No. of<br>Courses<br>in | Snow<br>Depth<br>1958 | Snow Water Content<br>in Inches |             |      |        | Snow<br>Density<br>1958 | 1958 Water<br>Content in<br>Percent of |     |
|--------------------------|-------------------------|-----------------------|---------------------------------|-------------|------|--------|-------------------------|--|-----|
| WATERSHED                | Average                 | Inches                | 1958                            | 1957        | 1956 | Normal | Percent                 |  |     |
| Gila River               | 8                       | 1                     | 0,5                             | 1.1         | 1.6  | 2.1    | 50                      | 45                                     | 5/1 |
| Salt River               | 9                       | 2                     | 0.4                             | 2.5         | 2.2  | 3.0    | 20                      | 16                                     | 13  |
| Verde River              | 4                       | 0                     | 0.0                             | 3.6         | 0.5  | 2.7    |                         | ting \$500                             |     |
| Williams River           | 1                       | 0                     | 0.0                             | 5.1         | 0.0  | 1.4    |                         |  |     |
| Lower Colorado<br>River  | 14                      | 5                     | 1.3                             | <b>5.</b> 3 | 2.6  | 4.8    | 26                      | 24                                     | 27  |
| Little Colorado<br>River |                         | 3                     | 0.6                             | 2.8         | 1.9  | 3.2    | 20                      | 21                                     | 19  |

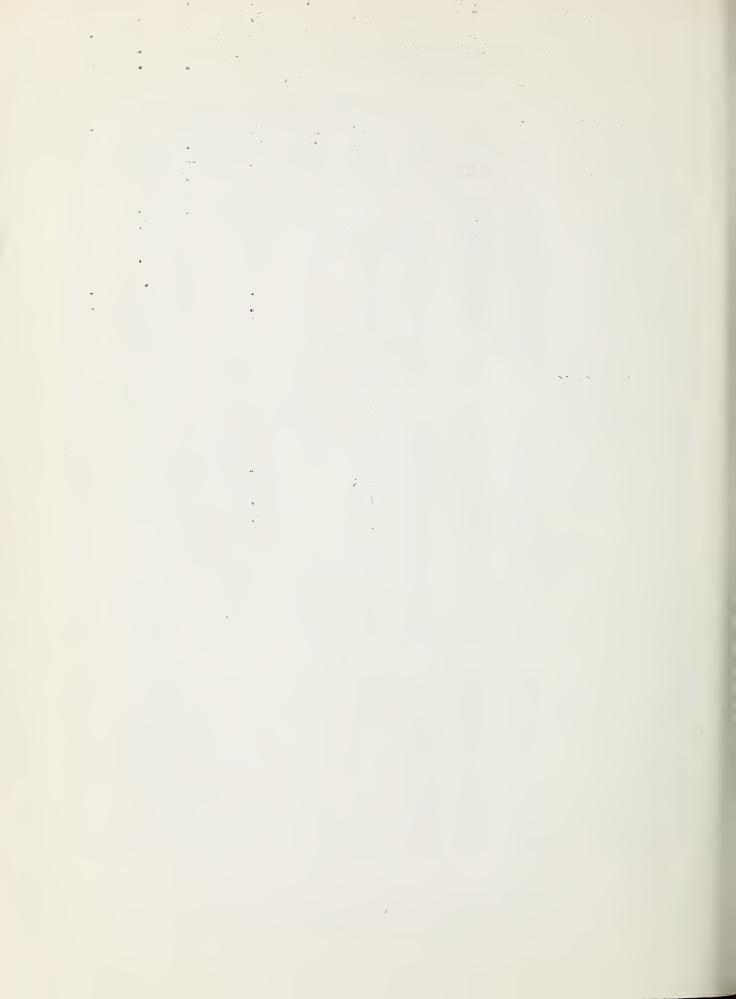
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|  |              |              |                       | SNO          | W COVER I         | MEASUR!    | RUENTS     |                                      |              |
|--|--------------|--------------|-----------------------|--------------|-------------------|------------|------------|--------------------------------------|--------------|
|  |              |              |                       | 1958         |                   | 1110010    |            | RECORD                               |              |
| DRAINAGE BASIN                         |              |              | Date                  | Snow         | Water             | Water      |            | nt (In.)                             | Prior        |
| and                                    |              |              | of                    | Depth        | Content           |            |            | 1938-52                              | Yrs. of      |
| SNOW COURSE                            | No.          | Elev.        | Survey                | (In.)        | (In.)             | 1957       | 1956       | Average                              | Record       |
| GILA RIVER                             |              |              |                       |              |                   |            |            |                                      |              |
| Nutrioso                               | 984          | 8500         | 1/31                  | T            | T                 | 1.0        | 2.5        | 2.5 0/                               | 20           |
| Bear Wallow 3/                         | 10T1         | 8100         | Report                |              |                   | 4.8        | 2.6        | 2.2 2/                               | 10           |
| Frisco Divide                          | 8 <b>S</b> 1 | 8000         | 1/31                  | 4            | 1.8               | 2.0        | 2.5        | 2.1                                  | 20           |
| State Line                             | 988          | 8000         | 1/31                  | 4            | 1.8               | 2.5        | 2.1        | 2.9                                  | 20           |
| Coronado Trail                         | 957          | 8000         | 1/31                  | 2            | 0.3               | 0.9        | 1.8        | 3.7                                  | 20           |
| Beaver Head                            | 986          | 8000         | 1/31                  | T            | T                 | 1.1        | 1.5        | $3.1\frac{2}{2}$                     | 18           |
| Taylor Creek                           | 7S1          | 7850         | 1/31                  | 0            | 0.0               | T          | 0.5        | 0.7 2                                | 16           |
| Inman Rose Canyon 3/                   | 7S2<br>1OT2  | 7800<br>7300 | 1/31                  | O<br>Dolarr  | 0.0               | T<br>14.8  | 0.5        | 3.1 2/<br>0.7 2/<br>0.9 2/<br>0.7 2/ | 12<br>10     |
| Mogollon                               | 8S2          | 7000         | 1/31                  | t Delay<br>O | 0.0               | 1.3        | 1.3        | 0.1 -                                | 5            |
| Black Canyon 3/                        | 7S3          | 6790         |                       | Delay        |                   |            | 0.3        |                                      | 4            |
|  | 1~5          |              | 1001.01               | 3 202aj      | <b>.</b>          |            |            |                                      |              |
| SALT RIVER                             |              |              |                       |              |                   |            |            |                                      |              |
| Ft. Apache 1/3/                        | 9R5          | 9160         | 1/30                  | 15           | 2.9               |            |            |                                      | 6            |
| Baldy 1/<br>Maverick Fork 3/           | 9S1<br>9S2   | 9125<br>9020 | 1/30                  | 14           | 3.2               | 5.0        |            |                                      | 7<br>6       |
| Nutrioso                               | 954          | 8500         | 1/30<br>1/31          | 16<br>T      | 4.4<br>Т          | 1.0        | 2.5        | 2.5                                  | 20           |
| Coronado Trail                         | 9S7          | 8000         | 1/31                  | 2            | 0.3               | 0.9        | 1.8        | 3.7                                  | 20           |
| Beaver Head                            | 986          | 8000         | 1/31                  | T            | T                 | 1.1        | 1.5        | 3.1 2/                               | 18           |
| Pacheta ,                              | 985          | 7800         | 1/31                  | 0            | 0.0               | 3.0        | 2.9        |                                      | 8            |
| Gentry 3/                              | 10R5         | 7600         | 1/29                  | ${f T}$      | T                 |            | 1.9        |                                      | 7            |
| Heber 2/                               | 10R4         | 7600         | 1/29                  | T            | T                 |            | 1.8        |                                      | 7            |
| Canyon Creek #2 3                      | 10R7         | 7500         | 1/29                  | T            | T                 |            |            | 2 2/                                 | 0            |
| McNary<br>Milk Ranch                   | 9R2<br>9R1   | 7200<br>7000 | 1/31                  | 0            | 0.0               | 2.8<br>2.7 | 3.2<br>3.5 | $3.0 \frac{2}{1.8}$                  | 19<br>17     |
| Workman Creek                          | 10S1         | 6900         | 1/31<br>1/27          | O<br>T       | 0 <b>.</b> 0<br>T | 3.0        | 2.4        | 1.0                                  | 6            |
| Forest Dale                            | 10R6         | 6430         | 1/31                  | 0            | 0.0               | 2.6        | 2.1        | 1.3 2/                               | 18           |
|  |              | -45-         | <i>1</i> / <i>) 1</i> | Ü            | 0.0               |            |            |                                      |              |
| VERDE RIVER                            |              | - 4          |                       |              |                   |            |            |                                      | ,            |
| Happy Jack 3/                          | 11R5         | 7630         | 1/31                  | 0            | 0.0               | 4.1        |            |                                      | 4<br>4<br>7  |
| Gaddes Canyon 3/                       | 12R4         | 7600         | 1/31                  | 2            | 0.3               | 4.3        | 2.6        |                                      | 4            |
| Mormon Mountain 3/<br>Mormon Lake 1/3/ | 11R3<br>11R4 | 7500<br>7350 | 1/29                  | T            | T                 |            | 2.7<br>1.1 | 61,2/                                | 10           |
| Fort Valley 1/                         | 11P2         | 7350         | 1/29<br>1/31          | T<br>T       | T<br>T            | 2.7        | 1.5        | 6.4 2/<br>3.6 2/<br>1.9 2/<br>4.0 2/ | 11           |
| Mingus Mountain                        | 12R3         | 7100         | 1/31                  | 0            | 0.0               | 2.9        | T          | 1.9 2/                               | 11           |
| Chalender                              | 12P1         | 7100         | 1/31                  | T            | T                 | 3.7        | 0.5        | 4.0 2/                               | 11           |
| Casner Park 3/                         | 11R2         | 6930         | 1/29                  | 0            | 0.0               |            | 0.8        |                                      | 7            |
| Munds Park 3                           | 11R1         | 6500         | 1/29                  | 0            | 0.0               |            | T          | 2/                                   | 7<br>7<br>12 |
| Iron Springs 1                         | 12R2         | 6200         | 1/28                  | T            | T                 | 5.1        | 0.0        | 1.4 2/                               | 12           |
| Camp Wood 3/                           | 12R1         | 5700         | Report                | Delay        | ed                | 3.5        | 0.0        | 1.4 =                                | 12           |
|  |              |              |                       |              |                   |            |            |                                      |              |

<sup>1/</sup> On adjacent drainage.

<sup>2/ 1938-52</sup> average is estimated from existing records within period.

<sup>3/</sup> Not included in watershed averages.



## ARIZONA SNOW SURVEYS - ABOUT FEBRUARY 1, 1958

|                               |                |                    |              |           | NOW COVE   | D ME A SI  | MENTER!    | mg.  |            |
|-------------------------------|----------------|--------------------|--------------|-----------|------------|------------|------------|--|------------|
|                               |                |                    |              | 1958      |            | IL FIEAD   |            | T RECORD   |            |
| DRAINAGE BASIN                |                |                    | Date         | Snow      | Water      | Water      |            | nt (In <sub>2</sub> )  | Prior      |
| and                           |                |                    | of           | Depth     | Content    |            |            | 1938-52  | Yrs. of    |
| SNOW COURSE                   | No.            | Elev.              | Survey       | (In.)     | (In.)      | 1957       | 1956       | Average  | Record     |
| WILLIAMS RIVER                |                |                    |              |           |            |            |            |  |            |
| Iron Springs                  | 12R2           | 6200               | 1/28         | T         | T          | 5.1        | 0.0        | 1.4 2/   | 12         |
| Camp Wood 1/3/                | 12R1           | 5700               | Repor        | t Delay   |            | 3.5        | 0.0        | 1.4 2/<br>1.4 2/<br>1.2 2/                                       | 12         |
| Willow Ranch 3/               | 13P1           | 5000               | Repor        | t Delay   | red        | T          | 0.0        | 1.2 5  | 9          |
| LOWER COLORADO RI             | VER            |                    |              |           |            |            |            |  |            |
| Bright Angel                  | 12N1           | 81 <sup>t</sup> CO | 1/31         | 16        | 4.5        | 11.8       | 6.6        | 8.5 <u>2/</u><br>3.0 <u>2/</u><br>3.6 <u>2/</u><br>4.0 <u>2/</u> | 10         |
| Grand Canyon                  | 11P1           | 7500               | 1/31         | 5         | 0.7        | 3.1        | 1.7        | 3.0 2  | 10         |
| Fort Valley Chalender 1       | 11P2<br>12P1   | 7350<br>7100       | 1/31<br>1/31 | T<br>T    | T<br>T     | 2.7<br>3.7 | 1.5        | 1,02/  | 11<br>11   |
|                               |                | , 200              | 1/ )1        |           | •          | ٧•١        | 000        | 400 _  | -L-L-      |
| LITTLE COLORADO R             |                | 07/0               | - /          | - س       |            |            |            |  | ,          |
| Ft. Apache 3/<br>Baldy        | 9R5<br>9S1     | 9160<br>9125       | 1/30<br>1/30 | 15<br>14  | 2.9<br>3.2 | 5.0        |            |  | 6<br>7     |
| Nutrioso                      | 9S4            | 8500               | 1/31         | 124<br>T  | 7•2<br>T   | 1.0        | 2.5        | 2.5  | 20         |
| Happy Jack 1/3/               | 11R5           | 7630               | 1/31         | 0         | 0.0        | 4.1        |            |  | 4          |
| Gentry 3/                     | 10R5           | 7600               | 1/29         | T         | T          |            | 1.9        |  | 7          |
| Heber 3/<br>Canyon Creek #23/ | ,10R4<br>,10R7 | 7600<br>7500       | 1/29<br>1/29 | $^{ m T}$ | ${f T}$    |            | 1.8        |  | 7<br>0     |
| Mormon Mountain 3             |                | 7500               | 1/29         | T         | T          |            | 2.7        |  | 7          |
| Mormon Lake 3/                | 11R4           | 7350               | 1/29         | ${f T}$   | T          |            | 1.1        | $6.4 \frac{2}{3}$  | 10         |
| Fort Valley                   | 11P2           | 7350               | 1/31         | T         | T          | 2.7        | 1.5        | 3.6 4  | 11.        |
| McNary<br>Forest Dale         | 9R2<br>10R6    | 7200<br>6430       | 1/31<br>1/31 | 0         | 0.0<br>0.0 | 2.8<br>2.6 | 3.2<br>2.1 | 6.4 2/<br>3.6 2/<br>3.0 2/<br>1.3 2/                             | 19<br>18   |
| 1 12 30 0 20 40               | 10100          | 34,5               | <b>1/</b> )1 |           | 0.0        | 2.0        | C - 44     | <b>4.</b> ( <b>4.</b>  | <b>T</b> O |

<sup>1/</sup> On adjacent drainage.

<sup>2/ 1938-52</sup> average is estimated from existing records within period.

<sup>3/</sup> Not included in watershed averages.

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## ARIZONA SNCW SURVEYS - DELAYED REPORTS RECEIVED SINCE LAST BULLETIN (January 15, 1958)

| DRAINAGE BASIN                                    |                         |       | SNOW COVER               | MEASUREMENTS           | 5 - 1958                  |
|---|-------------------------|-------|--------------------------|------------------------|---------------------------|
| and<br>SNCW COURSE                                | No.                     | Elev. | Date of<br>Survey        | Snow Depth<br>(Inches) | Water Content<br>(Inches) |
| GILA RIVER Beaver Head                            | 9 <b>-</b> S <b>-</b> 6 | 8000  | Corrected Rep<br>1/14/58 | ort<br>l               | 0.6                       |
| VERDE RIVER LOWER COLORADO RIV LITTLE COLORADO RI |                         |       |                          |                        |                           |
| Fort Valley                                       | 11-P-2                  | 7350  | 1/15/58                  | 0                      | 0.0                       |



## LIST OF SNOW SURVEYORS

| SNOW COURSE     | SURVEYOR                                      |
|-----------------|---|
| Baldy           | SCS and SRVWUA                                |
| Bear Wallow     | Forest Service                                |
| Beaver Head     | N. A. Josh                                    |
| Black Canyon    | Wayne Black                                   |
| Bright Angel    | National Park Service                         |
| Camp Wood       | Mrs. C. C. Merritt                            |
| Canyon Creek    | SCS and SRVWUA                                |
| Casner Park     | SCS and SRVWUA                                |
| Chalender       | Forest Service M. C. Oleson & F. E. Page      |
| Coronado Trail  | Forest Service - J. C. McAdams                |
| Forest Dale     | Fort Apache Reservation Valverde & Endfield   |
| Frisco Divide   | Forest Service                                |
| Ft. Apache      | SCS and SRVWUA                                |
| Fort Valley     | Rocky Mt. Forest & Range Experiment Station   |
| Gaddes Canyon   | SCS - Richard Enz                             |
| Gentry          | SCS and SRVWUA                                |
| Grand Canyon    | National Park Service - J. Lynch              |
| Happy Jack      | Emil Ryberg                                   |
| Heber           | SCS and SRVWUA                                |
| Inman           | C. H. McCauley                                |
| Iron Springs    | Ernest Saxby                                  |
| McNary          | Fort Apache Reservation - Valverde & Endfield |
| Maverick Fork   | SCS and SRWWA                                 |
| Milk Ranch      | Fort Apache Reservation - Valverde & Endfield |
| Mingus Hountain | SCS - Richard Enz                             |
| Mogollon        | J. R. Wray                                    |
| Mormon Lake     | SCS and SRVWUA                                |
| Mormon Mountain | SCS and SRVWUA                                |
| Munds Park      | SCS and SRVWUA                                |
| Nutrioso        | Forest Service - J. D. McAdams                |
| Pacheta         | Foch Phillips                                 |
| Rose Canyon     | Forest Service                                |
| State Line      | Forest Service                                |
| Taylor Creek    | C. H. McCauley                                |
| Willow Ranch    | Tiny Miller                                   |
|                 | · · · · ·                                     |
| Workman Creek   | Rocky Mt. Forest & Lange Experiment Station   |

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#### FEDERAL

Department of Agriculture

Soil Conservation Service

Forest Service
Apache Forest
Coconino Forest
Coronado Forest
Gila Forest
Kaibab Forest
Prescott Forest
Rocky Mountain Forest and Range Experiment Station

Department of Commerce Weather Bureau Arizona Section

Department of Interior

Bureau of Reclamation Region III

Geological Survey
Arizona District

Bureau of Indian Affairs Fort Apache Reservation

National Park Service Grand Canyon National Park

Gila Water Commissioner Safford, Arizona

#### IRRIGATION PROJECTS

Salt River Valley Water Users' Association Phoenix, Arizona

San Carlos Irrigation and Drainage District Coolidge, Arizona

#### PRIVATE

Southwest Lumber Mills, Inc. McNary, Arizona

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

# Federal - State - Private COOPERATIVE SNOW SURVEYS

Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

"WATER IS THE WEST'S GREATEST RESOURCE"